

HISTORY OF PROJECT 7, SUB-PROJECT 2
(1934 - 1943)

1934 - 1938 (P. V. Traphagen): Sweet Corn Breeding.

1934 - 1936 - Inbred lines and open pollinated varieties had been selfed since 1934 and had been carried along in hopes of finding some outstanding inbred characteristic that would prove useful in producing hybrid corn.

1937 - Inbred lines were maintained for experimental crosses. Crosses were made of promising inbreds. A detasseling project was included using an open pollinated variety as pollen parent to pollinate a number of detasseled pure line inbreds.

1938 - Pure inbred lines were maintained and increased for experimental crosses. Average silking date was determined on all lines showing marked uniformity.

1939 - Project Inactive. No leader or Progress Report.

1940 - 1941 - (W. D. Enzie): Sweet Corn Breeding.

1940 - Thirty-two top-cross hybrids and 135 inbred lines were planted for observation of the material. Only 6 inbred lines and 2 top-cross hybrids showed some promise.

1941 - The six most promising inbred lines from the previous year were further inbred to increase the seed of each line.

1942 - Project inactive. No Leader and no Progress Report.

1943 - (J. I. Shafer): Sweet Corn Breeding.

1943 - The most promising early inbreds left by Mr. Enzie were selfed. In addition, crosses were made between various commercial sweet corns which seemed to have characteristics desirable for New York growers.

1944 - Projects VC-7 and VC-33 were combined in June 1944 as Project VC-35 and history from then is listed at the beginning of the file on Project 35 Progress Reports.

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C O P Y

March 22, 1945

Miss J. Sperry
Jordan Hall

Dear Miss Sperry:

Vegetable Crops Projects #7 and #33 were combined and have been reported this past year as Vegetable Crops Project #35. This change was made when I was put, in part, on Purnell funds. Consequently, we will from now on not submit any reports for Projects #7 and #33 as such since the work will be reported under Project #35.

Yours, truly,

John Shafer, Jr.

JS:rc

NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, GENEVA

PROGRESS REPORT, YEAR ENDING: December 31, 1943

Date Submitted: Feb. 1, 1944

Division of: Vegetable Crops

Project No. 7
Subproject No. 3

Fund: General

Title: Sweet Corn Breeding

Date Initiated: January 1, 1941

Duration: Continuous until objectives are achieved.

Leader: J. I. Shafer

Progress for this year: The most promising early inbreds left by Mr. Emsie were grown and two plants in each inbred line were self-pollinated. In addition, crosses were made between various commercial sweet corns which seemed to contain characteristics desirable for New York growers. Each of three late varieties of good quality - Golden Cross Bantam, Buttercup, Black Mexican - were crossed with each of three early varieties - North Star, Spangloss, Early Golden Market.

Fourteen hybrids which had been left by Mr. Emsie were grown in small quantity for observation. Two of them looked sufficiently promising to be worth growing in somewhat more extended trials.

Present status: There are on hand 53 early inbred lines which have been inbred three generations. These could be crossed in various ways this summer, for testing in 1945, but they can equally well be inbred for one more generation before being tested. Furthermore, there are on hand nine hybrids between late varieties of good quality and early varieties of poorer quality. These hybrids will need to be selfed this coming summer. The seed supply of the two promising hybrids left by Mr. Emsie is very low, and will need to be replenished before these hybrids can be tested further.

Publications: None

Plans for the coming season: The early inbred lines left by Mr. Emsie will be self-pollinated again this year. They will also be crossed in various ways so that in 1945 they can be evaluated as parents. The hybrids between commercial lines will need to be self-pollinated for several generations. It is hoped that from them will come some superior inbreds, carrying the quality and vigor of the late parent, the earliness of the early parent. Of course, many inferior inbreds will be produced, also, and they will have to be eliminated. New seed of Mr. Emsie's promising hybrids will be produced this summer so that the hybrids can be tested further in 1945.

By 1945 or 1946 the corn breeding program will need to be greatly expanded if there is to be any serious expectation of obtaining worthwhile new hybrids. So few new hybrids are markedly better than existing ones that it is necessary in a corn breeding program to make and test large numbers of hybrids if one wishes to have a reasonable chance of finding one superior hybrid.

Estimated expenditures from funds allocated to department:

	<u>State</u>	
	1943	1944
Salary of leader	\$ 320	\$ 400
Labor and maintenance	120	300
Special expenditures for installation or rent	\$ 40	

APPROVED:
Feb. 16, 1944
 Date

Chas. B. Sayre.
 Head of Division

DATE: February 17, 1942

REPORT OF PROGRESS

PROJECT NO. 7
Sub-project No. 2

DIVISION: Vegetable Crops

NAME OF PROJECT: Sweet Corn Breeding.

PROGRESS OF THE WORK: The six most promising inbreds selected from previous work were further inbred to increase the seed of each line. New open pollinated stocks of Golden Sunshine and Golden Bantam were isolated from which was selected a large number of ears as a basis for securing additional new inbred lines. Several open pollinated F^1 selections were made out of Seneca Golden, Sachem, Golden Cross and Tendergold as additional sources of new germ plasm for future inbred lines.

PUBLICATIONS: None.

PLANS FOR THE COMING YEAR: At least 3 increase isolation blocks including various inbred combinations are to be planted in order to secure sufficient hybrid seed for testing in 1943. An attempt will be made to inbreed with as many new lines as possible to conform/ the expected labor shortage. Since this project conflicts with the systematic study of yellow hybrids scheduled for 1942, no extensive inbreeding program can be conducted.

Leader W.D. Engle

Head of Division _____

DATE: March 1, 1941

REPORT OF PROGRESS

PROJECT NO. 7
Sub-project No. 2

DIVISION: Vegetable Crops

NAME OF PROJECT: Sweet Corn Breeding.

PROGRESS OF THE WORK: Thirty-two top-cross hybrids and 135 inbred lines in various stages of development were planted for observation. Pressure of other work made it impossible to make a critical study of all material. Notes for each lot were secured in regard to plant height, tassel color, ear length, number of rows, regularity of row arrangement and kernel color with particular emphasis paid to the variation of kernel color on the same ear. Fully 90 per cent of the material was distinctly irregular in kernel color and row arrangement and variable in tassel color and plant height. Five inbred lines, one derived from (Charlevoix x P39) x P39, Buttercup (67-1), Burbank Bantam (108-3) and 2 sub-strains of Purdue 1313 (56-1) and (56-2) appeared to be uniform and attractive. The top cross hybrids Buttercup 610 (68-2) Buttercup 66 (118), Charlevoix P390 (19) and Charlevoix P39 (119) appeared to have some promise, but none were superior to standard hybrids commercially grown in New York State.

PUBLICATIONS: None.

PLANS FOR THE COMING YEAR: It is planned to reorganize this project in view of the questionable value of most of the inbred material now at hand. Due to the limited amount of labor and technical assistance available it is not possible to conduct an extensive breeding program with another open-pollinated crop. It is proposed, therefore, that the aforementioned 3 inbred lines be continued and a limited series

of new inbred lines be initiated. When these have been established it is hoped that the field work with the other open-pollinated crops will have lessened to enable more time to be spent in making the necessary test hybrid inbred combinations of the material then available.

Leader W.D. Engzi
Head of Division _____

DATE: May 6, 1939

REPORT OF PROGRESS

PROJECT NO. 7
Sub-Project No. 2

VISION: Vegetable Crops.

NAME OF PROJECT: Sweet Corn Breeding.

PROGRESS OF THE WORK: The pure lines are being maintained and increased for experimental crosses. There were 16 top cross Geneva hybrids planted for comparison and 3 top cross hybrids submitted by Dr. D. F. Jones of the Connecticut Experiment Station for observation, also 3 Connecticut Station Inbred lines G2, G6, and G13 for comparison with Geneva inbreds. There were about 750 different hand pollinations made in 1938.

As mentioned in the Progress Report of 1938, several pure lines have manifest themselves and these have been increased by hand pollination this past summer to be used in experimental crosses in the future.

The average silking date was determined for all strains showing marked uniformity, to give an index of harvesting maturity in the future. This has to be carried on as seasons and planting dates vary from year to year.

In 1936 an outstanding top cross was produced with Harris' Buttercup x P39. This produced a midseason corn of very high quality, much better than Buttercup as to size of ear and number of rows of kernels.

In 1938 a large number of Buttercup plants were hand pollinated with two different strains of Purdue "39", one the original and the other a Geneva selection which for the past 3 years has been 3 to 4 days earlier than the original strain secured from G. M. Smith of Purdue University and the U. S. Department of Agriculture.

Buttercup was crossed on the following pure line inbreds: P14-1-2-6,

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Buttercup was crossed on the following pure line inbreds: P14-1-2-6,

P51, G2, G3, G5, G10, G11, G13 and Conn. #6. Samples of F_1 seed from each of the above named crosses have been submitted to Harris Seed Farms, who furnished the open-pollinated Buttercup seed for these experimental hybrids.

PROCEDURE: Only one planting of corn was made in 1938 and this was accomplished in one day, June 7th. The single crosses and top crosses were planted in a block by themselves, separated by a six foot alley from the rest of the planting, which ^{was} made up entirely of pure line inbreds and segregating lines that have been self pollinated 2, 3 and 4 years.

All corn was planted in drills 3 ^{feet} ~~inches~~ apart and seeds dropped 5 to 6 inches apart and later thinned to stand 10 to 12 inches apart in the row. Seeding was especially heavy in order to get as near a perfect stand as possible.

As the season advanced and the tassels emerged and opened up, day to day observations were made to observe silk emergence dates and pollen shed.

It has been interesting to note that no silks appeared generally until the center spike of the tassel was shedding pollen. Therefore, to control pollination, the ear tufts had to be covered with glassine bags before the silks appeared and before any pollen was shed, as there is always pollen drifting in the air when the silks put in their appearance.

PUBLICATIONS: None.

PLANS FOR THE COMING YEAR: These well established pure lines will be maintained by hand pollination, as well as the new ones which have been in the process of line breeding. It is the desire at present to backcross some of the most promising top crosses on their inbred parent to fix the type and then proceed with an inbreeding program.

During the past winter a request has come from the U. S. Depart-

ment of Agriculture for a number of strains of inbred sweet corn to be included in a corn borer resistance trial at Toledo, Ohio. The following inbred strains have been submitted: G3, G7, G10, G12, G13, G32 C-2-2-1, G36B-1, G61E-3.

Samples of the following F_1 top cross hybrids, Charivoix • G2, Charl • G7; Charl • G10; Charl • G13; Charl • G11, and 3 F_1 single crosses: P39 • G3; P39 • G12; P39 • G13 have been sent to Long Island for corn borer and corn ear work resistance trials under the supervision of L. A. Garruth of the Division of Entomology of this Station.

Signed P. V. Trapnager

Chas. B. Sayre.
Head of Division

DATE: February 17, 1938

REPORT OF PROGRESS

PROJECT NO. 7
Sub-Project No. 2

DIVISION: Vegetable Crops.

NAME OF PROJECT: Sweet corn breeding.

PROGRESS OF THE WORK: The pure lines are being maintained for experimental crosses. Due to excessive dry weather in 1936 at pollinating time, only a very small population of seed was secured for the 1937 crop.

One top cross made in 1935, namely Purdue Bantan (P59) x Charlevoix was very outstanding in 1936 through the dry weather, and several plants were self-pollinated and a number of segregations are manifesting themselves and some of these looked very promising this year and were again self-pollinated to keep the lines pure.

Burbank Bantan submitted by Rogers Bros. Seed Co. is being selfed for pure lines and two outstanding selections have come to light thus far.

PROCEDURE: There were two blocks of sweet corn planted in 1937. One isolated from other corn was planted June 5 with irrigation facilities. This was done for a detasseling project using an open-pollinated variety (Charlevoix) as the pollen parent to pollinate a number of detasseled pure line inbreds.

A sufficient amount of well matured seed was secured from this planting to give the several top crosses a good trial in 1938.

The second block of corn for hand pollination was planted June 26 adjacent to the regular sweet corn variety trials. Due to very favorable weather conditions after the ^{late} plant planting date the corn made very satisfactory growth and 164 populations were secured from pure line and top cross hand pollinations.

In a previous report it was stated that weekly plantings were

to be made in 1937. This was not possible due to inclement weather and pressure of other work.

Each plant that was self-pollinated or cross-pollinated was tagged and the pollen shedding date and also the silk immerge date were recorded. The tags were left on the plant until harvest time and then removed and attached to the seed ear.

This will give some indication of the time required from planting time to pollination of individual lines secured.

PUBLICATIONS: None.

PLANS FOR THE COMING YEAR. The well established pure lines will be carried on with the addition of new material which was first self-pollinated in 1935 and 1936. The desirable segregates will be maintained by controlled pollinating and the undesirables will be discarded.

Signed P. V. Trap Hagen

Signed Chas. B. Sayre

Head of Division

DATE: March 11, 1937

REPORT OF PROGRESS

PROJECT NO. 7
SUB-PROJECT NO. 2

DIVISION: Vegetable Crops.

NAME OF PROJECT: Sweet Corn Breeding.

PROGRESS OF THE WORK: The pure lines are still being maintained as previously reported. Several open-pollinated varieties were self-pollinated for the first time in 1934 and these are being carried along in hopes of securing some outstanding inbred characteristics that will be of use in producing hybrid corn. A large percentage of these new lines recently started did not have the vitality to stand and produce seed through the drought season of 1936 and consequently have been eliminated by natural causes.

Of the several top crosses made in 1934, Charlevoix x P39 gave the best performance during the past season.

At the U. S. D. A. Arlington Farm, Roslyn, Virginia, 1936, the following inbred strains were in trial for wilt resistance: G5, G7, G13, also a promising Charlevoix strain (G36 B-1). The G5 strain was moderately resistant while the remainder of the strains were reported as moderately susceptible to sweet corn wilt.

Rogers Bros. Seed Co. of Chicago submitted samples of the following for breeding purposes: Burbank Bantam, 60 Day Golden, and 8 rowed Golden Bantam. North Dakota Agricultural Experiment Station, Golden Gem and several inbred lines from G. M. Smith of the Purdue Experiment Station and the U. S. D. A.

Procedure: There were two plantings of corn made, the first on May 15th, the second on June 2nd. The soil was very dry and a very poor stand resulted. The second planting was badly damaged by a heavy rain

on June 16 which washed out a large number of the small corn plants.

During the pollen shedding period the temperature was very high accompanied by high winds which blasted the tassels, hence very little viable pollen was shed.

Therefore no large population of any one particular inbred line will be produced in 1937 from the 1936 seed crop.

PUBLICATIONS: None.

PLANS FOR THE COMING YEAR: It is hoped at present to be able to duplicate last year's planting plan with such additional material from last year's pollinations as is at hand and also to institute a series of weekly plantings with inbreds and open-pollinated sorts to determine if possible the length of time the different lines shed pollen and the date when silks first appear.

It is quite necessary to become acquainted with the time of pollen shedding and silking in different pure lines to make successful crosses with early and late maturing strains.

Signed P. V. Tupper

Chas. B. Lays
Head of Division